

Serial No. 09/987,267
Reply to Office Action dated December 9, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1. (Currently Amended) A process for the continuous manufacture of a mixture of organosiloxanes of formula I:



wherein R and R'' are identical or different and are methyl, ethyl, vinyl, n-propyl, i-propyl, γ -chloropropyl, n-butyl, t-butyl, n-pentyl, i-pentyl, n-hexyl, i-hexyl, n-heptyl, i-heptyl, n-octyl, i-octyl, hexadecyl, octadecyl or alkoxy, R' represents methyl or ethyl, n and m are identical or different and each is 0 or an integer ranging from 1 to 20, on the condition that $(n+m) \geq 2$, ~~x and x'~~ are 0 to <3, y and y' are >0 to 1.5, z and z' are 0 to <3, wherein ~~x and x'~~, y and y' and z and z' are the same or different, and ~~(x+2y+z)=3 and (x'+2y'+z')=3~~ $(2y+z)=3$ and $(2y'+z')=3$, comprising:

reacting in a first stage the constituents of (i) an organotrichlorosilane or a mixture of organotrichlorosilanes, or a mixture of at least one organotrichlorosilane and tetrachlorosilane, (ii) water and (iii) alcohol, combined in a molar ratio (i):(ii):(iii) of 1 : (0.59 to 0.95) : (0.5 to 100), at a temperature of 0 to 150° C, which produces hydrogen

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chloride and a crude organoalkoxysiloxane as products which are removed from the system; proportionately transferring the crude organoalkoxysiloxane product to a reaction distillation column of a subsequent second stage after an average dwell time of 0.5 to 180 minutes; and

conducting reaction and distillation in said reaction distillation column in which volatile constituents are withdrawn from the top of the column and the organoalkoxysiloxane product is withdrawn as a bottom product, wherein the reaction-distillation column is operated at a bottom temperature of 50 to 200° C.

Claim 2. (Original) The process as claimed in Claim 1, wherein said organotrichlorosilane is methyltrichlorosilane, vinyltrichlorosilane, ethyltrichlorosilane, n-propyltrichlorosilane, i-propyltrichlorosilane, γ -chloropropyltrichlorosilane, i-butylytrichlorosilane, n-butylytrichlorosilane, pentyltrichlorosilane, hexyltrichlorosilane, heptyltrichlorosilane, n-octyltrichlorosilane, i-octyltrichlorosilane, hexadecyltrichlorosilane or octadecyltrichlorosilane.

Claim 3. (Original) The process as claimed in Claim 1, wherein methanol or ethanol is alcohol (iii).

Claim 4. (Currently Amended) The process as claimed in Claim 1, wherein the constituents (i), (ii) and (iii) are present in a molar ratio of 1 : (≥ 0.6 ≥ 0.6 to 0.9) : (1 to 3).

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Claim 5. (Original) The process as claimed in Claim 1, wherein, after an average dwell time of 1 to 60 minutes, the crude product is transferred proportionately from the first process stage to the reaction-distillation column of the second stage.

Claim 6. (Original) The process as claimed in Claim 1, wherein the crude product is conveyed from the first process stage via a preheater before introduction to the second stage.

Claim 7. (Original) The process as claimed in Claim 1, wherein the crude product is conveyed from the first process stage to the upper half of the reaction-distillation column.

Claim 8. (Original) The process as claimed in Claim 1, wherein alcohol in a molar ratio of constituents (i) : (iii) of 1 : 0.1 to 100 is supplied to the lower section of the reaction-distillation column of the second process stage.

Claim 9. (Original) The process as claimed in Claim 1, wherein the alcohol fraction which accumulates in the second process stage at the top of the column is fed back to the reaction-distillation column of the second process stage and/or to the first process stage.

Claim 10. (Previously Amended) A mixture of linear, cyclic and/or net-like organoalkoxysiloxanes, which is prepared by the process as claimed in Claim 19.

Claim 11. (Original) A method of treating organic or inorganic surfaces, comprising:

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applying to said organic or inorganic surfaces the mixture of organoalkoxysilanes as claimed in Claim 10 as a concentrate, in diluted form, in emulsified form or a component of a surface treatment agent.

Claim 12. (Original) The method as claimed in Claim 11, wherein the treatment is applied on inorganic surfaces, for water-, oil-, dirt- and/or dye-repellency, for corrosion inhibition or for adhesion-promotion of metals, ceramics, artificial stones, glass, building materials, building components and buildings; for waterproofing and surface modification of textiles, leather, cellulose and starch products; for coating glass and mineral fibers or for surface modification of fillers.

Claim 13. (Previously Amended) A method of improving the rheological properties of dispersions and emulsions, comprising:

incorporating the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10 in a dispersion or emulsion.

Claim 14. (Previously Amended) A coating or paint formulation, comprising:
a paint or coating formulation containing the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10.

Claim 15. (Previously Amended) A binding agent, comprising:
the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10 alone

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or as a component of a binding agent formulation.

Claim 16. (Previously Amended) A release agent, comprising:
the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10 as a release agent.

Claim 17. (Previously Amended) An adhesion promoter, comprising:
the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10 as an adhesion promoter.

Claim 18. (Previously Amended) A cross-linking agent, comprising:
the mixture of linear, cyclic and/or net-like organoalkoxysiloxanes of Claim 10 as the cross-linking agent.

Claim 19. (Currently Amended) A process for the continuous manufacture of a mixture of organosiloxanes, comprising:
reacting in a first stage the constituents[:] of (i) RSiCl_3 or R''SiCl_3 , wherein R and R'' are identical or different and are methyl, ethyl, vinyl, n-propyl, i-propyl, γ -chloropropyl, n-butyl, t-butyl, n-pentyl, i-pentyl, n-hexyl, i-hexyl, n-heptyl, i-heptyl, n-octyl, i-octyl, hexadecyl, octadecyl or alkoxy, or a combination of these two organotrichlorosilanes or a mixture of at least one of the organotrichlorosilanes and tetrachlorosilane, (ii) water and (iii) methanol or ethanol, combined in a molar ratio (i) : (ii) : (iii) of 1 : (0.59 to 0.95) : (0.5 to

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100), at a temperature of 0 to 150° C, which produces hydrogen chloride and a crude

organoalkoxysiloxane as products which are removed from the system;

proportionately transferring the crude organoalkoxysiloxane product to a reaction distillation column of a subsequent second stage after an average dwell time of 0.5 to 180 minutes; and

conducting reaction and distillation in said reaction distillation column in which volatile constituents are withdrawn from the top of the column and the organoalkoxysiloxane product is withdrawn as a bottom product, wherein the reaction-distillation column is operated at a bottom temperature of 50 to 200° C.

Claim 20. (Currently Amended) A process for the continuous manufacture of a mixture of organosiloxanes, comprising:

reacting in a first stage the constituents[:] of (i) RSiCl_3 or R''SiCl_3 , wherein R and R'' are identical or different and are methyl, ethyl, vinyl, n-propyl, i-propyl, γ -chloropropyl, n-butyl, t-butyl, n-pentyl, i-pentyl, n-hexyl, i-hexyl, n-heptyl, i-heptyl, n-octyl, i-octyl, hexadecyl, octadecyl or alkoxy, or a combination of these two organotrichlorosilanes or a mixture of at least one of the organotrichlorosilanes and tetrachlorosilane, (ii) water and (iii) methanol or ethanol, combined in a molar ratio (i) : (ii) : (iii) of 1 : (0.59 to 0.95) : (0.5 to 100), at a temperature of 0 to 150° C, which produces hydrogen chloride and a crude organoalkoxysiloxane as products which are removed from the system;

conveying the crude organoalkoxysiloxane product organoalkoxysiloxane product obtained to a preheater;

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proportionately transferring the preheated crude organoalkoxysiloxane product to a reaction distillation column of a subsequent second stage after an average dwell time of 0.5 to 180 minutes; and

conducting reaction and distillation in said reaction distillation column in which volatile constituents are withdrawn from the top of the column and the organoalkoxysiloxane product is withdrawn as a bottom product, wherein the reaction-distillation column is operated at a bottom temperature of 50 to 200° C.